

REMARKS

In the Office Action, the Examiner rejected claims 1-12 and 32-37 pursuant to 35 U.S.C. § 102(e) as being anticipated by Aime (U.S. Patent No. 6,467,138). Claims 1-10, 12 and 32-37 were again rejected pursuant to 35 U.S.C. § 102(b) as being anticipate by Corbett et al. (U.S. Patent No. 6,266,857). Claims 3, 5-12, and 33-36 were rejected pursuant to 35 U.S.C. § 102(b) as being anticipated by Lum et al. (U.S. Patent No. 5,701,901). Claims 1, 5, and 6 were rejected pursuant to 35 U.S.C § 102(b) as being anticipated by Lussey (WO 00/79546). Claims 1-12 and 32-27 were rejected pursuant to 35 U.S.C. § 102(b) as being anticipated by Miller, et al. (U.S. Patent No. 5,267,221). Claims 13 and 14 were allowed. Applicants respectfully request reconsideration of the rejected claims, including independent claims 1, 3, 5, 7, and 9.

Claims 1, 3, 5, 7, and 9 recite an electrically conductive acoustic matching layer with an aligned conductor in the matching layer. Aime and Corbett et al. do not disclose these limitations.

In response to previous arguments, the Examiner first alleges that “the recitation a matching layer has not been given patentable weight because the recitation occurs in the preamble.” However, the body of the claim clearly recites “a conductor...within the matching layer,” positively reciting the matching layer outside of the preamble.

Second, the Examiner relies just on the improvement as “aligning a conductor relative to the top and bottom surfaces therein” but ignores the “matching layer” recitation in the preamble and the body of the claim. The claim requires an aligned conductor in a matching layer as the improvement. Aime and Corbett, et al. do not show alignment within the matching layer. The Jepson type format is provided to claim improvements in the context of the preamble. It is why the preamble is treated as a positive limitation in Jepson claims. Citing to other reference disclosure out of the preamble context alone is insufficient.

Third, the Examiner acknowledges the Jepson type format, but notes that the preamble does not mention a backing layer in order to distinguish the layers and does not positively recite a transducer. However, the claim does positively recite that the improvement is for an acoustic matching layer on a transducer. An acoustic matching layer is a term of art known to be different than a backing layer. The claim, by using the terms acoustic matching layer, distinguishes from a backing layer. Backing layers are sound absorbing, and matching layers are non-absorbing or low-loss. Since Aime and Corbett et al. are both directed backing layers (see the titles), these two references do not disclose the claimed acoustic matching layer.

Dependent claims 32-36 positively recite the structurally distinguishing transducer and positioning between the patient or lens and the transducer. The Examiner alleges the first side may be the backing side of the transducer since this is just relative to how one looks at the structure. However, the claim recites the matching layer between the transducer and the lens or patient. The backing absorbs acoustic energy, so would not be between the transducer and lens or patient.

Lum et al. disclose a matching layer 196 (col. 14, lines 16-23). A groove 210 is cut through the matching layer and filled with a conductive material 212, such as silver epoxy (col. 14, lines 43-53; and Figs 20A, 20B and 21). The matching layer 196 and conductor 212 are coated with an electrically insulating material, and then a small portion on an edge is removed for electrical connection (col. 14, line 65-col. 15, line 11). The electrical connection is made by using as little coverage of the matching layer or possible (col. 15, lines 24-31).

Independent claim 3 recites the conductor and at least one additional conductor aligned between the top and bottom surfaces of the matching layer corresponding to an element. Lum et al. form an element (col. 14, lines 58-64). As shown in Fig. 21, a single groove and conductor are provided. Lum et al. do not disclose a conductor and at least one additional conductor between the top and bottom surfaces of the matching layer corresponding to an element.

The Examiner cites to multiple conductors 212 shown in Figure 20B. However, Figure 20B shows a transducer block, not elements (col. 14, lines 4-11 and 43-52). This transducer block or plate is then diced or cut to form elements or smaller blocks (col. 14, lines 58-64). Figure 21 shows one such element having only a single conductor in the matching layer. Lum, et al. provide multiple conductors for the entire array, but only a single matching layer conductor for each element of the array.

Independent claim 5 recites the matching layer comprising castable material. Lum et al. show lapping and adhering the matching layer (col. 14, lines 20-23), but do not suggest a castable material. The Examiner did not provide a specific citation showing castable material in Lum, et al.

Independent claim 7 recites a via between the top and bottom surfaces of the matching layer. Lum et al. use an epoxy filled groove, not a via. The Examiner cites to the conductors being perpendicular. However, perpendicular does not create a via.

Independent claim 9 recites conductive film extending from the top to the bottom surface at least partially within the matching layer. Lum et al. fill a groove with epoxy, so do not disclose conductive film within the matching layer. The Examiner cites to perpendicular positioning, but does not cite to use of a film in Lum, et al.

Lussey discloses a variable resistor (abstract), such as used for switching (page 23, line 6). Conductors 313 may be embedded in an element (page 24, line 24-page 25, line 3). However, the variable resistor element is not a sonic transducer as recited in claims 1 and 5. Lussey also do not disclose a matching layer as recited in claims 1 and 5.

Miller, et al. describe a backing (title) like Aime and Corbett, et al. The backing desirably fully attenuates acoustic energy (col. 2, lines 32-35). The backing 27 is formed from the block 37 cited by the Examiner (col. 5, lines 28-32). The conductors 39 cited by the Examiner are in the backing (col. 5, lines 28-34). Miller, et al. describe a backing, not a matching layer as claimed in claims 1-12 and 32-37.

Dependent claims 32-36 recite the matching layer between the transducer and the lens or patient. Miller, et al. disclose an attenuating backing. If positioned between the lens or patient, the backing would not allow the transducer to function. Miller, et al. do not disclose the limitations of claims 32-36.

Dependent claims 2, 4, 6, 8 and 10-12 depend on independent claims discussed above, so are allowable for the same reasons as the respective independent claim.

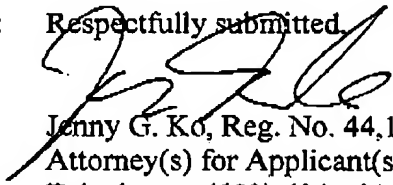
CONCLUSION:

Applicants respectfully submit that all of the pending claims are in condition for allowance and seeks early allowance thereof. If for any reason, the Examiner is unable to allow the application but believes that an interview would be helpful to resolve any issues, he is respectfully requested to call the undersigned at (650) 694-5810 or Craig Summerfield at (312) 321-4726.

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